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AUTHOR Akiyama, Takashiro
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ABSTRACT

Published on the occasion of the 30th anniversary of the school television broadcasting industry in Japan, this document reviews and summarizes the results of past research on the Japanese school television system and considers its future direction. After a brief introduction, the document is divided into six sections: (1) a prehistory of school television broadcasting; (2) a 30-year history of research on the audience for school television broadcasting; (3) research on the methods of utilization of school television broadcasting; (4) experimental research on the composition of school television programs; (5) research on school broadcasting conducted and reported by classroom teachers; and (6) recent trends in research on school broadcasting. Reference is made to specific studies, most of which can be categorized as theoretical research, fact-finding surveys, or experimental research. A 32-item bibliography completes the document. (JB)

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# Research on School Television in Japan

## (1953 ~ 1983)

1983

TAKASHIRO AKIYAMA

NHK Radio & Television Culture
Research Institute

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# RESEARCH ON SCHOOL TELEVISION IN JAPAN

(1953~1983)

Takashiro Akiyama, Senior Researcher
NHK Radio & Television Culture
Research Institute

The author has once asked some 300 students of the university, where the author was teaching, about their experiences of learning by the school television programs during their childhood. The answers of these students to the author's question have revealed that the 82% of them have more or less learned by the school television programs, though the contents of the programs range from the puppet show for the kindergarten children to the VTR program for biology for senior high school students. The similar data is not available as to the general public at present, but it seems that most of the Japanese in the first half of their twenties now belong to the generation having the experience of learning by the school television programs.

On the other hand, the video industry in Japan has made rapid progress in the last several years. Under such circumstances, the hardware, that is, the video tape recorders are now possessed by most of the schools, and a variety of video tapes as the softwares have begun to come on the market of the teaching materials on a full scale from around 1981 through 1983. Besides, other new media

such as the CATV, Text TV and video disk have also come up to participate in the educational media. Thus, the school television system of today cannot be discussed without referring to its relations with these new media.

Under such circumstances, the school television broadcasting in Japan has marked its 30th anniversary this year. On this understanding, the author has written this paper in order not only to review and summarize the results of the past researches on the Japanese school television system but also to consider the content of the future school television system in Japan.

## Introduction

The surveys and the researches on the school television system in Japan can be divided into the theoretical research, fact-finding survey and experimental research by the method of study or the survey.

Of the researches on the school broadcast in Japan with the history of near half a century including that of the radio broadcasting for the schools, the researches on the educational broadcast theories have been most active in the past. For instance, there were a number of hot controversies on the roles of the tearchers to be played in the cases of the education utilizing the school television

programs. Even in the last 30 years corresponding to the history of the school television system in Japan, the educational broadcast theories have given considerable impacts both directly and indirectly to the producers of the educational programs and the teachers who have utilized the school broadcasting. Even tody, some advocates that the school broadcasting will not be able to bring the expected effect capitalizing on the characteristics of the television unless it is utilized in the form of the live broadcasting. On the other hand, however, there are some with the opinion that the school teacher intending to utilize any educational boradcast program should tape-record it first, and examine its content before using it as a teaching material.

The opinions of the theorists on the education system using the television are sometimes confronted with those of the theorists on the education system using the motion pictures, but their opinions agree at other times. Still, however, some of the school teachers oppose strongly to the use of the taperecorded television programs, saying that their oppositions are based on a certain theory. Therefore, in reviewing the achievements of the researches on the educational television broadcasting in the last 30 years, it seems to the author necessary to trace the histories of the educational broadcast theories in order to consider not only why some of the theories have become

the important subjects of controversies in those days in the current of the times but also their present-day significances.

In this paper, however, the discussion of the above-mentioned theme will be made within necessary minimum, and the discussion will be concerned mainly with the results of the positive field researches and the experimental researches.

## 1. Prehistory of school television broadcast

The experimental broadcasting of the school television programs was commenced in October, 1951 in parallel with the experimental broadcasting of the general programs taking the opportunity of the expansion of the experimental television broadcasting, but in August of the same year, two months before the start of the experimental school television broadcast, the "Audio Visual Education Study Committee"[1] had already been organized by Kanji Hatano, Mitoji Nishimoto and some school teachers as the members. Simultaneously with the commencement of the experimental school television broadcast, NHK lent the television receivers to the two primary schools and two junior high school selected as the subjects of the experiments from among those in Tokyo Metropolitan area, and asked them to use the then

school television programs as part of their curricula.

As for the characteristics of the above-mentioned committee and the experimental schools, a book entitled "Twenty-Five-Year History of School Broadcasting in Japan" has an observation saying, "The characteristic of the committee consisted in that the members of the committee had considered the researches and the utilization of the programs as the extensions of those for the radio programs. All the members of the committee were the pioneers in the utilization of the school radio programs, and had noticed intuitionally that the school television programs could be the teaching materials with the features peculiar to the radio wave media different from those of the motion pictures and the slidefilms as far as they were to be transmitted to the users by the radio wave. It is interesting to note, however, that in the early period of the experimental broadcasting of the school television programs, the popular programs among the users were not necessarily ones capitalizing on the special characteristics of the radio wave media such as the prompt reporting ability but ones produced for the appreciation of the art works or the introduction of the musical instruments which could be replaced readily by the films. These experimental school television programs were viewed by the pupils of the aforementioned pilot

schools, and both the reactions of the pupils and the opinions of the teachers were fed back to the producers of the programs at the television station or the aforementioned committee. The contents of the programs were improved during the period of the experimental broadcasting, and the regular broadcasting was started in February, 1953.

At the general meeting of the All-Japan Teachers' Federation for Studying the Use of Radio and Television in Education held in Tokyo in 1955, the educational television study committee was organized for the first time, and since then, the committee has been continuing the systematic studies of the utilization and the effect of the television programs in the classrooms. One of the remarkable characteristics of the school broadcasting in Japan is that the school teachers participate in the production of the program from its preparatory stage including the processes of the planning and the studies so that the voices of the teachers can be reflected adequately on the content of the program.

In other words, as mentioned above, in the case of the school television program produced in Japan, the psychologists, group of researchers and producers in collaboration with each other has not set up the aim of the program and the procedure of its production

just like the case of the preparatory studies and the production of "Sesame Street". More specifically, the programs have not been produced based on the procedure of the formative study, that is, the pilot production of the program by the basic plan, experimental viewing of the pilot programs by the prospective users, laboratory test, modification of the content of the program based on the results of the experimental viewing and the laboratory test and the distribution of the programs among the users, but they have been produced through the constant contacts and the resultant interactions between the producers of the school television programs and the group of users.

As discussed later, the fact that the majority of the research papers dealing with the school broadcasting in Japan have been written by the teachers of the kindergartens, elementary schools and junior high schools, and their themes are concerned with how to utilize the school television programs signifys that these school teachers have already had the backgrounds that have enabled them to write such research papers, since many of them more or less have long participated in the research of the school radio programs in the past.

In April, 1953, National Society for the Study of Radio Television Education was organized, and the first conference on the education by the school broadcasting was held in 1955. This society together with the Japan Society for the Study of Audio-Visual Education organized in 1964 and NHK Radio & Television Culture Research Institute have been playing important roles in the field of the research on the broadcasting education system in Japan.

2. Thirty-year history of audience research of school television broadcasting

The NHK Radio & Television Culture Research Institute conducted its first national audience research for the school broadcasting programs including the television programs by the sampling method in October, 1957. In this research, the numbers of the television receivers posessed by the junior and senior high shools were surveyed. In July, 1958, 5 years and 5 months from the start of the school broadcasting in Japan, "the first survey of school broadcasting" was conducted, and this was the first nation wide survey of the school television broadcasting in Japan.

The change in the utilization of the school broadcast-

ing in Japan from 1953 to 1982 based on the various data accumulated through the past surveys of the school broadcasting will be discussed in the following by looking back the history of the spread divided into the following periods.

Utilization of television in early period of its spread (1953~1958)

In this paper, the period from February, 1953 when the school television broadcasting was commenced to 1958 is defined as the early period of the school television broadcasting.

In 1953, five television programs were broadcasted in five days from Monday to Friday for the pupils in the lower, middle and higher school years of elementary school, and the pupils in the lower and higher school years of junior high schools, and on Saturdays, the extracurriculum-oriented programs were broadcasted. In 1954, the program entiled "Travel by Television" produced as one of the teaching aids for the social studies for the elementary school children was started, and this program is still continuing. From January, 1957, two programs (15 minutes each) a day have been broadcasted. During the early period, 250 schools were using the school television programs of NHK as of March, 1954, but the number of schools using the

school television programs was increased to about 1000 by the end of 1955, about 2.5% of the total number of the elementary and the secondary schools in Japan. Naturally, those schools with the experiences in the utilization of the school radio broadcasting were active for the utilization of the school television programs. On the side of the producers of the broadcasting programs, the directors of the radio programs have undertaken the productions of the television programs too, since those participating in the school broadcasting considered the school television programs as the extension of the school radio programs. Thus, it seems that the school television programs have been produced based on the understanding that the features of the radio wave media such as the transitoriness, promptness, simultaneity and the time regularity are also the features of the teaching materials using the television.

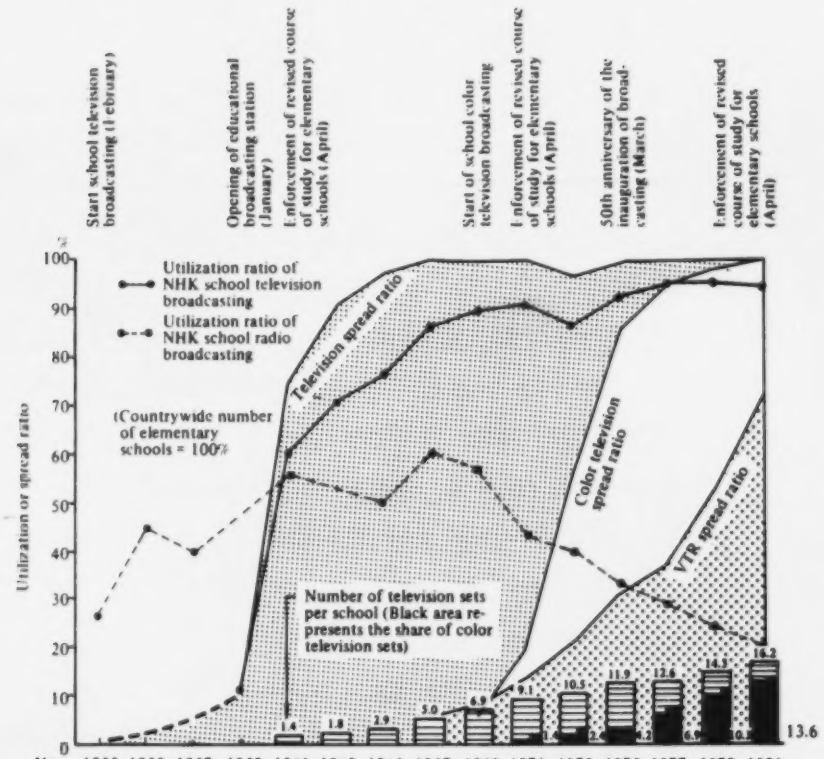
Utilization of television in its rapid spread period (1959 to 1968)

The result of nationwide sampling survey conducted in January, 1959 showed that only about 10% of all elementary schools in Japan were using the school television programs, and this percentage was not unusual. Incidentally, when this survey was conducted,

NHK did not have the special channel for the educational programs, and so the educational programs were broadcasted as part of the general programs network. Besides, in those days, still there were the isolated areas which could not be covered by the television broadcasting. Thus, these conditions are taken into account, the above-mentioned result of survey covering all the elementary schools in Japan seems to be reasonable.

The result of the nationwide survey conducted in 1960, however, revealed that something unusual had occurred in a year, that is, the number of the elementary school using the school television programs as of July, 1960 had jumped to 45.1%, 35% increase from the preceding year. Then, this percentage increased to 59.7% (15% increase) in 1961, and it continued to increase to almost 90% by 1970 by continuing to increase at the annual rate of 10%. Thus, the decade from 1959 to 1968 may be called the period of rapid growth of the school television. In this connection, it should be noted that the major social events occurred during this period such as the Imperial Wedding Ceremony of the Crown Prince of Japan in 1959 and Tokyo Olympic Games in 1964 have motivated a great number of Japanese people to purchase their own television sets.

Change in the utilization of school broadcasting by elementary schools


Start school television broadcasting (1 ebruary)
Opening of educational broadcasting station (January)
Enforcement of revised course of study for elementary schools (April)
Start of school color television broadcasting
Enforcement of revised course of study for elementary schools (April)
50th anniversary of the inauguration of broadcasting (March)
Enforcement of revised course of study for elementary schools (April)
%
Utilization or spread ratio
Utilization ratio of NHK school television broadcasting
Utilization ratio of NHK school radio broadcasting
(Countrywide number of elementary schools = 100%
Television spread ratio
Color television spread ratio
VTR spread ratio
Number of television sets per school (Black area represents the share of color television sets)
1.4
1.8
2.9
5.0
6.9
9.1
10.5
11.9
12.6
14.3
16.2
13.6
Year 1953 1955 1957 1959 1961 1963 1965 1967 1969 1971 1973 1975 1977 1979 1981

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Utilization ratio of NHK school television broadcasting | – | – | – | 10.2 | 59.7 | 69.5 | 76.1 | 85.6 | 88.9 | 89.3 | 86.1 | 92.5 | 95.3 | 94.9 | 93.9 |
| Utilization ratio of NHK school radio broadcasting | 27% | 45.1 | 39.8 | – | 56.2 | 51.7 | 49.6 | 60.5 | 56.9 | 42.9 | 39.9 | 33.2 | 29.4 | 34.2 | 30.5 |
| Television spread ratio | – | – | – | 10.9 | 74.5 | 89.7 | 97.1 | 99.2 | 99.2 | 99.6 | 96.0 | 99.6 | 99.7 | 99.9 | 100.0 |
| Color television spread ratio | – | – | – | – | – | – | – | – | 5.3 | 19.4 | 54.5 | 84.5 | 95.4 | 98.4 | 99.7 |
| VTR spread ratio | – | – | – | – | – | – | – | 5.4 | 7.4 | 13.2 | 20.1 | 30.7 | 37.5 | 52.3 | 71.4 |

Early period of television — Rapid spread period of television — Generalizing period of television — Multiple utilization period of television



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It was during this period of the rapid spread of the television sets when the attempts for the evaluations of effects of the school broadcasting have become active mainly through the researches carried out by NHK Radio & Television Culture Research Institute. For example, the institute started the effect study of the school television programs with that of the science program entitled "Why do things float or sink?", and since then the effect study has been continued using the various techniques such as the program analyzer, pretest and posttest method, then the results of the researches were published together in a research report entitled "The Evaluations of School Broadcasting Programs 1-14"[5] (1961 to 1964). During this period of time, the education by the broadcasting looks as if it had spread steadily throughout the country when viewed only in terms of the utilization ratio, but its density was much lower than the desired level. As shown in Fig. 1, the utilization ratio of school television broadcasting by the elementary schools was 76.1% in 1965, but the number of television sets per school was less than 3 sets. In other words, in this stage, even in the schools with television sets, it was a common thing that the school television programs were used by only several teachers who were interested in the education by the broadcasting, or

that only one television set was viewed at a time by more than 100 pupils consisting of the several classes. Under such circumstances, in 1963, NHK Radio & television Culture Research Institute made a survey of the opinions of the elementary schoolteachers concerning the education by school broadcasting[6] by interviewing about 3000 elementary schoolteachers selected on a nationwide scale in order to analyze both the facilitating and hindering factors to the utilization of the school broadcasting. In 1965 and 1966, the institute made studies[7][8] on how the educational broadcasting as an innovative factor to the school education has been accepted, and what have been the impeding factors to the spread of the school television broadcasting through the surveys covering the secondary schoolteachers selected on the nationwide scale.

Utilization of television in its generalizing period (1969~1974)

In the latter half of 1960s, the number of television sets in the schools began to show steady increase, and in 1969, there was one television set for every two classes of the elementary schools on the average. By this time, therefore, there were a number of elementary schools with the television sets placed in all the classrooms, since one television set for every

two classes was the national average.

The change from one-television-in-one-school level to one-television-in-one-classroom level should not be considered as the mere increase in the number of the television sets. I would like to consider this change as indicating the end of an era in which only a limited number of the teachers having a special interest in the education with television sets or other visual aids employ the broadcasting teaching method, and the start of a new era in which other teachers also become inclined to use the television sets because they are installed there for use. Thus, we may call this period the generalizing period of school television. In 1969, school color television broadcasting was started, and since then, the number of schools with the CTV systems began to increase.

When we view this period from the other angle, we can notice that an angle, or the age of school radio broadcasting, through which the predominant notion has been that the most orthodox way for the most effective utilization of the radio wave media for the school education is to capitalize on the common characteristics of the radio wave media - promptness, transitoriness, simultaneity and time regularity -, has come to an end, and that there is the increase in

the number of teachers who consider some of the common characteristics of the radio wave media such as the transitoriness and the time regularity to be rather negative factors in designing their curricula incorporating the video materials.

In 1971, about 5000 schoolteachers met to discuss the relation of the television and the education at the national meeting for the education by broadcasting held in Kanazawa City, a local city situated in the northern central part of Japan. The main theme of discussion at this meeting was the "Systematic Utilization of School Broadcasting" reflecting the trend of the age. By this time, the VTRs were gradually spreading among the elementary schools, and the spread of the same among the senior high schools was almost 80%. As a result, the themes of discussion at such meeting have come to include the themes such as "What is the education by broadcasting?", "How does the education by the broadcasting differ from the education by the conventional audio-visual aids including the motion pictures?" and so forth.

The surveys on the utilization of the school broadcasting by NHK Radio & Television Culture Research Institute conducted from the latter half of 1960s through the early part of 1970s were concerned with

the changes in the utilizations of the sound and video tapes and the resultant changes in the schoolteachers' views of the education by broadcasting and other various items so that the survey could be carried out from various angles. The results of these surveys have provided the important suggestions for the production and the production policy of the school television programs in the subsequent period, the period for the multiple utilization of television.

Also, in this period, the utilization of the school television by the secondary schools has continued to increase at considerably high annual rates until the ratio of utilization has reached the level of 52% in 1974.

Period for the multiple utilization of television (1975 to 1983)

The result of the survey in 1975 shows that the spread of the television sets among the elementary schools has reached the level of one television set for one classroom on the national average. In other words, the countrywide system for the utilization of the school television programs for the elementary schools has been completed so that any schoolteacher can directly utilize the school broadcasting by turning on the television set in its classroom regardless of whether or not the

school teacher is interested in the school broadcasting. Thus, as far as the elementary schools in Japan are concerned, the color television sets have spread as equally as do the blackboards. On the hand, at the senior high school level, 99% of the schools utilizing the school broadcasting have their own VTRs, and about 70% of these schools keep the VTR tapes of the school broadcasting for later uses.(Note) Thus, as the utilization of the school broadcasting as seen in the above-mentioned cases of the high schools getting popular, the advocates of the direct utilization of the school broadcasting, or viewing the live programs, as the most desirable way for the utilization of the school broadcasting have lost their foundations by this time.

The similar tendency was observed as to the cases of the junior high schools. For instance, the result of a survey in fiscal 1975 showed that the video tape utilization ratio at the junior high school level had reached about 65% by the time of the survey. Also, there has been the increase in the number of the schools using a variety of the teaching materials including the slides, OHP and Language Laboratory

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(Note) Under the Japanese Copyright Law, keeping the recorded sound and video tapes is permitted, provided that they will be used strictly for the school education purposes.

which are incorporated into their own systems. Now, a question comes across our mind, that is, "How long the age during which we are able to utilize the broadcasting on the air will last from now on?" Thus, the period in which the changes in the form of the school television media such as those mentioned above have occurred may be called the period for the multiple utilization of television.

The new television programs entitled "Junior High School Special Series" are the programs originally intended for being videotaped by the schoolteachers for the later playbacks. The contents of these programs include the classic arts of public entertainments, music, science, physical education, English language and so forth. The production of such program may be said to be one of the reflections of the age in which the school education by the broadcasting is about to face one of its major turning points. This trend of the school education by the broadcasting will eventually involve the elementary school education.

The result of survey by NHK Radio & Television Culture Research Institute in fiscal 1981 indicated that one fifth of all the elementary schools had been using the TV program after recording. The author considers that this ratio will increase rapidly from now on. The

utilization of the school broadcasting started from the AV education by the single medium, in which the importance has been attached to the direct use of the live program mainly due to the reason that the television program is one of the radio wave media, has gradually expanded its scope until it includes the use of the television as one of a variety of the video teaching materials such as the TV, VTR, slides and films.

Later, the VTR teaching materials produced by the schoolteachers and the VTR cassettes commercially produced by the teaching materials manufacturing companies have come up to join the group of the existing teaching materials. Under such circumstances, therefore, the school television broadcasting is now facing the question of how to maintain the uniqueness or the speciality of the school television programs as the teaching materials from now on and in the near future.

Thus, the factual survey of the school broadcasting utilization and the survey of the users' opinions of the school broadcasting programs will play vital roles in order to obtain the reliable data concerning the changes in the trends of various teaching materials so that we will be able to constantly fill the needs of the schoolteachers.

During this period, besides the above-mentioned survey by NHK Radio & Television Culture Research Institute, the similar factual surveys of the schoolteachers' opinions and the facts about the utilization of the school broadcasting have been conducted by various universities, local boards of education, education centers and research committees on the education by the broadcasting, and the results of these surveys have been used for the productions of the teaching materials and the practices of the school broadcastings matching their respective local conditions.

3. Research on the methods of utilization of school television broadcasting

Of the themes of the research on the school television broadcasting in the past 30 years, the theme concerned with how to utilize the school television has been one of the three most popular themes including those concerned with the facts about the utilization of school television, and the schoolteachers' opinions. In other words, one of the three most popular themes of the researches has been concerned with the teaching technique using the school television for the schoolteachers.

Research on the continuous use of series programs

In the Japanese school broadcasting system, from the time of its commencement, most of the series programs have been produced as the annual programs starting from April and ending in March of the following year, intended for being televised on the weekly basis, and the content of each program was arranged so that the largest educational effect can be obtained by being viewed continuously as a series program. On the side of the viewers, however, it has not been so easy for them to adjust their schedules in order not to miss any unit of the series program that has been televised at the fixed time of the fixed weekday. For example, in order for the schoolteachers not to miss any chances of directly viewing the televised series program, they will be required to adjust their daily schedules by the broadcasting times of the seriese television programs. Therefore, the teachers has had to solve such problems either by using only the selected units of the series program or by using all the units of the television program series independently from the regular school lessons. When the television program, for example, concerned with the study of the history is used independently from the regular school lesson of the history, it is very likely that the content of the former will not coincide with that of the latter.

More specifically, for exmaple, it is possible that when the television program deals with the Russo-Japanese War whereas the content of the regular classroom lesson is concerned with the Japanese history in the Edo period or the late 19th century.

After the television has become a commonplace in this country, NHK Radio & Television Culture Research Institute and International Christian University have conducted a joint research on the effect of the continuous use of a school television program entitled "English Class on Television for First Graders" in 1961, and another joint research on the effect of the dramatized moral education program entitled "We are all good friends" was conducted in 1964 by dividing the viewers into the group of the selective viewers and the group of weekly viewers, and the effects of the program on these two groups were compared with each other, and also with the moral consciousness of the other group consisting of the non-viewers of the program. The result of this research indicated that the most desirable effect had been given on the group of the weekly viewers.

Research on the continuous use in remote rural areas

Among the various researches concerning the continu-

ous use of the school television, a long-term research on the continuous use of the school television in the remote rural areas conducted by I. Tsuji of NHK Radio & Television Culture Research Institute in 1963 has provided us with a number of valuable suggestions in proving the educational effects of the television programs.

In those days when this survey was conducted, about a quarter of all the elementary schools in Japan were located in the out-of-the-place areas and the isolated islands. It has been considered that the greatest educational effects can be expected from the school television programs especially for the children learning at the elementary schools in such remote rural areas. Thus, in order to survey the accumulated effect of the school television programs on the elementary school children in such remote rural areas, a long-term field survey by the control group method was conducted for the 12 months from April, 1962 covering the 5th graders of the four elementary schools located in the remote areas of the central mountaneous districts in Japan. For the purpose of the research, two out of the four selected elementary schools were provided with the television sets so that the children of these two schools would be able to view the two programs respectively entitled "Travel

on Television" and "Science Classroom on Television for 5th Graders" on weekly basis, while the rest of two schools that constituted the control group for the research were left without the television sets so that the children in these schools would follow the conventional method of learning relying on the textbooks and the blackboards. Then, the children's scholastic attainments, interest in learning and social attitude were tested in April that is immediately before the start of viewing the television programs, and after the start of viewing, in June, October, December and March of the following year, in order to obtain the data on which we will be able to judge whether what the children has learnt from the television programs will be able to be absorbed effectively as the knowledge or the understanding, or whether learning by the television programs has any advantages over the conventional way of learning mainly by the textbooks.

According to the result of this one-year research, in the cases of the children who have viewed the school television programs, not only their scholastic attainments in the social studies and the science but also their IQs have been improved. More specifically, the result of the test conducted immediately before these children start viewing the school television programs

indicated that they were considerably below the national level in both the IQs and the scholastic attainments, perhaps, due to the handicap of attending the schools located in isolated areas, but after they had learnt by the school television programs for one year, not only their IQs have become better than the national average but also their scholastic attainments became such closer to the national average.

As of 1961, the utilization ratio of NHK's school television programs at the elementary school level was less than 60%. Thus, the result of this experiment applied to the schools located in isolated areas in order to measure the effects of school television program has contributed greatly toward making the teachers of the schools not using the school televisions realize the educational effect of the school television, and even those schoolteachers who have been rather indifferent towards the use of the school television have begun to use the school television increasingly.

Different types of teaching methods and their effects

The researches by NHK Radio & Television Culture Research Institute up to this point have been conducted by setting up the subject of the research in the form

of "Group of the shools using the television programs continuously vs Group of the school not using the television programs" or "Group of the schools using the television programs continuously vs Group of the schools using the television programs selectively." We must note, however, that even under the category of the continuous utilization of the school television, it is possible that the teaching method by the television varies depending on the individual schoolteachers.

For the above-mentioned reason, in 1965, T. Tada of NHK Radio & Television Culture Research Institute conducted his research on the improvement in the children's abilities to absorb the contents of the television programs by establishing the habit of continuous viewing. In carrying out this research, he experimentally divided the teaching method into some types on the assumption that teaching method should vary depending on the individual teachers. The television program series used for this research was "Our Lives" intended for the social studies for the 4th graders of the elementary schools, and for the purpose of the research, the program viewing schedule was set up so that the successive 9 unit programs of this series program could be viewed by the children at the age of 9 years for two months at

the rate of one unit program per week. In this research, he assumed the three possible types of the teaching method, that is, the type of teaching that uses the content of the television program as an aid to the regular teaching, the type of teaching that uses the content of the television program as the knowledge to be fully memorized by the children, and the type of teaching that uses the television program for the children to observe without any verbal explanation by the teachers.

(After completing this experiment), the children who had viewed the television programs were tested several times in two months, and the results of these tests indicated that the children's interests in the social studies had been increased by viewing the television programs, and this tendency was specially conspicuous as to the cases of the children who had been taught by the teacher who had used the television program as an aid to the regular teaching. The results of the tests also indicated that the type of teaching that uses the television program as an aid to the regular teaching and the type of teaching that uses the television program as the knowledge to be fully memorized by the children had brought the better effects on the children than the case of the teaching that uses the television programs without any guidance. This means

that the educational effects of the school television programs can be increased in the cases where the teachers give proper advices to the children before or after they are viewed by the children.

Research on the independent use and integrated use

As far as the major researches on the effect of the continuous use of the school television programs by NHK Radio & Television Culture Research Institute are concerned, the one mentioned in the above was the last one. During the decade from 1965, however, three major long-term researches on the effect of the continuous use of the school television programs have been conducted by the researchers belonging to the universities[p1] and the research institutes. But, these researches differ from those conducted by NHK Radio & Television Culture Research Institute in that they paid their attentions to the cases where the content of the school television program were not coincident with that of the textbook, whereas in the researches conducted by the latter, the educational effect of the continuous viewing of the television program was measured through the mere comparison with the cases of the children who had not experienced viewing the school television programs.

For example, in the case of the research conducted in 1966 by K. Ukawa, for the purpose of his research, two series programs entitled respectively "Science Classroom on Television for 6th Graders" and "Science Classroom on Television for 1st Graders of Junior High School" were viewed continuously for one year by the pupils in the above-mentioned grades, independently from the content of the textbook, and the educational effects of these television programs were measured by comparing the scholastic attainments of the pupils exposed to the television programs and those of the pupils who were not exposed. Also, in the case of the research conducted in 1972 by K. Ishikawa, a series program entitled "Science Classroom on Television for 5th Graders" was viewed for one year by the children divided into two groups - one viewing the program independently from the content of the textbook and the other viewing the program as an integral part of the classroom lesson based on the textbook. The integrated type viewing of the television program means that the annual syllabi of the subject of study, the study of science in this case, at the school are set up so that their contents coincide completely with the contents of the television programs to be viewed throughout a year.

The results of the above-mentioned two researches have proved that the children's scholastic attainments can be improved by being exposed to the school television programs continuously for a certain period of time. Furthermore, it has been clarified, through Ukawa's research, that the children's interests in learning can be increased even through the independent or parallel use of the school television programs, and it has also been clarified, through Ishikawa's research, that there is no significant difference between the independent use and the integrated use of the school television programs as far as their effects on the scholastic attainments of the children are concerned, and the independent use is easier than the integrated use. Through their respective researches, both Ukawa and Ishikawa have concluded that the independent use of the school television programs will not give any adverse effects on the regular studies of the children based on the textbooks despite of that the lack of coincidence between the content of the televison program and that of the textbook has been considered to be the disadvantage of the independent use of the school television programs.

The above conclusion, however, was challenged by the results of the researches conducted in 1972 and 1973 by M. Fujita. In his researches, Fujita used a series

program entitled "Histories of Our Social Lives" intended for the social studies for the 6th graders of the elementary schools, and another series program entitled "Travel on Television" intended for the 5th graders. For the purpose of the research, these programs were viewed continuously by the children, but independently from the content of the textbook. The result of his research indicated that the time lag or discrepancy in the content between the television program and the study based on the textbook had acted as the negative factor on the understanding of the content of the program by the children. More specifically, Fujita pointed out that the desired educational effect cannot be expected from the television programs in the cases where the content of the television program precedes the content of the textbook, and for this reason, he is taking the negative attitude towards the independent viewing the television programs from the textbooks. After Fujita's research in 1975, the positive researches on the effect of the continuous use of the school television programs supported by the systematic experiments have not been conducted. The author presumes that the absence of any remarkable research activities in this field in recent years comes from the researchers' having realized that it is difficult to distinguish the educa-

tional effect of the television program from those of the regular studies based on the textbooks in the classroom and those of the home studies, especially in the cases of the long-term researches.

On the other hand, however, not a few reports of the schoolteachers prepared based on their actual experiences indicate that they believe in the educational effect of the continuous use of the television programs even when they are used independently from the contents of the textbooks. The contents of such reports of schoolteachers cannot be treated equally with the contents of the research reports written by the pedagogists, since the level of research of the formers differ from that of the latters. Nevertheless, as pointed out by Ishikawa in his previously mentioned paper, the positive researches for measuring the effects of the difference in the content and in the time between the television program and the textbook in the case of the independent continuous use of the television programs should have been conducted by now. This problem is still left unsolved when viewed from the pedagogical standpoint.

At the junior high school and the senior high school however, the use of the television program is now moving towards the use of the VTR library. Under

such circumstances, the television programs can be used as the integral part of the regular study based on the textbook without using them independently, and thus the author consider that the problem concerning the independent use will be able to be solved eventually as the present situation progressses.

Integrated research on the method of utilization

As already discussed previously, the educational effect of the school television program can be considered to be dependent on the method of utilization such as the utilization as the knowledge to be fully memorized, utilization as an aid to the regular study, independent utilization from the regular study, and utilization as an integral part of the regular study, but it is also necessary to consider the educational effect of the school television in relation with the effect of the daily teaching by the teacher at the school and the effect of the television viewing at home by the children. For example, in 1972, T. Mizukoshi conducted his research on the relationship between the educational effect of the school televisions and the four conditions under which the school television is utilized; these conditions are the condition concerning the school, condition concerning the teacher, condition concerning the parents, and condition concerning the

children. For the purpose of this research, the educational effect of the school television was measured based on the data collected through the questionnaire and the achievement tests applied to the children. By this research, the data concerning the opinions of the school principles, schoolteachers and parents, and the results of the pre-viewing and postviewing tests applied to the children were analyzed by the multivariate analysis method.

Based on the result of his research, Mizukoshi concluded that there are six principal conditions for increasing the educational effect of the school broadcasting: they are (1) that the schoolteacher not only has the profound understanding about the children but also display adequate enthusiasm for the daily leading of its class, (2) that the individual children as the class members are adapting themselves well with each other, (3) that the children have been trained so that they will be able to challenge their problems spontaneously, (4) that the schoolteacher has the accurate understanding of what should be taught to its class, (5) that the teacher will be able to explain the outline or the points of the television programs for the children before it is actually viewed by them so that the content of the program can be used

as an integral part of the regular study based on the textbook, and (6) that all these conditions are well coordinated so that they will be able to act positively. The research work completed by Mizukoshi and his co-researchers can be said to be one of the most remarkable research works in Japan in the first half of 1970s in that he has clarified the educational effect of the school television by analyzing the education as an integrated system, unlike that other field researches and the reports on the utilization of the school television have tended to remain at the level of mere utilization technique of the school television.

Mizukoshi and the educational broadcasting research group in Kanazawa City are now continuing their researches on the educational effects of the series programs entitled "New travelogue of Japan" that is intended for the adult audience, "Our Green Earth" that deals with the problems for the conservation of the natural environment. Through these researches, they have proved that the educational effect of any school television program is largely dependent on how the schoolteacher is able to use it effectively.

4. Experimental research on the composition of school television programs

In 1960s, the program-producing capacity of the television broadcasting station was much increased, and they have become able to produce a considerable number of school broadcasting programs. On the other hand, the number of schools utilizing the school television has also increased. Also, in this decade, the school television programs have come to be produced based on the new conception that has never existed before. In other words, the school television programs have come to be produced as one of the regular teaching materials that is good enough to be subsituted for the regular lesson by the schoolteacher, and not as the mere teaching aid to supplement the textbook as it was so before, supported not only with the positive suggestion from the educational broadcasting research group and other research groups but also with the educational broadcasting theory that the television programs can function as the TV-teachers from which the children can learn directly. This educational broadcasting theory is based on the understanding that, as far as the school television is concerned, the so-called the TV-teacher should play the principle role in teaching, and the schoolteacher the role of the assistant.

This theory also stands on that the school television programs should not be used as the mere tools for exposing the children to the substitutive experiences in the field trip for the social studies or the experiments in the classroom for the study of science, but they should be used as the means of the direct teaching for the children. Under such circumstances, therefore, the programs naturally have come to be produced with more educational consideration than ever before. For this reason, the experimental researches have come to be conducted in order to obtain the data to be used for the production of the programs.

Research and development of new type of television program for science study

Speaking of the past television programs for the science study, some of them have played the roles of no more than the mere tools to provide the teaching materials that cannot be obtained readily by the schools. For example, the programs showing the process of a large-scale physical experiment, the process of the florescence filmed at very slow speed and the microscopic film showing the process of the multiplication of the bacteria fall under the category of the above-mentioned type of the program. These types of programs have once

been considered to be able to bring the satisfactory educational effects as far as these programs properly designed to suit the different needs of the children in different grades are presented to the children by the teachers appearing in the programs. We cannot deny that the aforementioned function is one of the important functions of the school television program, but this is nothing more than the part of its total function. Thus, when we stand on the understanding that the school television program should be used as the means for the direct teaching to the children, it becomes essential for us to conduct the carefully-planned experimental researches for the production of the television programs matching with the stages of the growth of the children and the contents of the subjects to be learned.

As one of the good examples of the researches for the production of the new type of the program for the science study matching with the needs of this period of time, the research on "Why Do Things Float and Sink?", a television program intended for the science study of the 4th graders of the elementary schools, conducted by K. Inao and his co-researchers at NHK Radio & Television Culture Research Institute may be mentioned. In the course of this research, the producer of the program cooperated with the researcher, and

produced three trial programs dealing with the physical experiments intended to facilitate the children's understanding of the conceptions of "floating" and "sinking" of the things.

Of the above-mentioned three trial programs, the Program-A is designed so that the children will be able to understand the physical phenomena of floating and sinking of the solid matters such as cork pieces, wood pieces and potatoes in relation with the water. This program is intended to describe the process of the practice and the observation of the physical experiment commonly conducted in the classroom of any elementary school, fully capitalizing on the advantages of the television program.

Program-B is designed, unlike the case of the Program-A, so that the basic principles of the floating and sinking of one specific solid matter, a glass bottle in this case, in relation with different kinds of liquids such as the oil, water and salt water can be understood by the children.

Program-C is intended to explain that comparing the weights of different kinds of solid matters requires their cubic volumes to be equal, and in order to illustrate this principle, the liquids such as the

oil and the water are used (This program is similar to Program-A in that the floating and sinking of the things are explained in relation with the water). Thus, this program is designed so that the children will be able to apply the principle to the cases of the solid matters.

For the purpose of the experiment, 343 children (10-year-old 4th graders of elementary school) were divided into A, B and C groups of almost equal level, and the Programs-A, B and C were viewed respectively by the corresponding groups of the children. The reactions of these groups of children were analyzed by the program analyzer and the apprehension test, and the result of the analysis was recorded accordingly. The result of analysis by the program analyzer indicated that the Program-B had most attracted the attentions of the children followed by Program-A and Program-C. Observing the "like-dislike" curve by the analyzer, we can notice that the "like" reaction, after it has once reached a certain level, will not show any conspicuous change, then continues to remain constant at a certain level. For this reason, Inao points out that it is desirable for the program to be designed so that it will be able to attract the attentions of the children in the beginning so that the "like" reaction of the

children can be raised quickly.

Then, comparing the content of the program with the rise and fall of the wave form plotted on the graph, we can recognize that the "like" reaction becomes conspicuous when the actual physical phenomenon is reproduced on the television screen by the experiment. The "like" reaction is not so conspicuous in the sequence of the verbal explanation by the teacher appearing in the picture, and also the curve of the "like" reaction tends to be maintained at higher level when the illustrations or the charts are used for the explanation than when the explanation is made verbally by the teacher appearing in the television screen. These facts have been clarified by analyzing the results of the researches and the experiments.

Comparing the results of the apprehension tests applied to the children divided into the groups A, B and C, the groups rank in the order of Group-A, Group-C and Group-B in terms of the average score of the test, and there are statistically significant differences between Group-A and Group-C, and between Group-C and Group-B. After all, judging from the result the result of the apprehension test, we have learnt that the Program-A produced based on the most orthodox plan has brought the highest educational effect as

far as the effect on the apprehension of the basic principle and the acquisition of the related knowledges are concerned, and it is followed by the Program-C and the Program-B, despite of that the Program-B is most liked by the children.

Following the above-mentioned research, the first of this kind, NHK Radio & Television Culture Research Institute has conducted the similar experimental researches on the educational effects of other television programs for the social studies and the science studies, utilizing the questionnaires and the pre-post test method for the collection of the data, and the program analyzer for the analysis of the data. For example, the research on a television program for the science entitled "Forest" featuring its three different types of narration, namely, "directional type", "commentary type" and "directional commentary type" conducted in 1966 by T. Tada, and another research on an experimental program for the social studies entitled "Fishery in Seto Inland Sea" featuring that the greater emphasis is placed on the visual effect than the verbal effect of the narration by reducing the volume of the narration, conducted in 1968 by T. Tada, have included the experiments for analyzing the educational effects of these

programs from the standpoints of the developmental psychology. For the purpose of this experiment, the above-mentioned programs were viewed by the six groups of children ranging from the 3rd graders of the elementary schools and the second-year pupils of the junior high schools.

Before the researches on the educational effects of the individual television programs involving the audio-visual experiments as discussed in the above, in 1964, T. Tada of NHK Radio & Television Culture Research Institute conducted the basic research on the children's ability to inscribe things in their memories, using the three different types of stimuli such as the color photos, sketches drawn with black lines and characters, in order to analyze such abilities of the children from the standpoint of the developmental psychology.

Experimental research for analyzing the composition of program

The outcomes of the experiments and researches conducted by NHK's Radio & Television Culture Research Institute during the period of the rapid spread of the school broadcasting have given great impacts on the planning and the productions of the school television programs in the later days. For example, it may be said that

many of the series television programs for studies of science and many other series television programs have been produced based on the criteria for the television programs as the teaching materials that have been established through the aforementioned experiments and the researches.

In the latter half of the above-mentioned period, many researchers conducted their experiments in order to obtain the data for reconsidering both the contents and the compositions of the conventional school television programs produced by the broadcasting stations.

For example, in 1966, T. Nagata conducted the experiments using the three different variations of a television program, "English Class on Television", which differ from each other as to the frequency at which the skits are presented and the letters to be displayed on the picture screen, in order to compare the effects of these two factors among these three different cases. In 1967, M. Kaneda also conducted the similar experiments using the same program by changing the frequency at which any one English sentence is repeated on the picture screen, and also by changing the method by which the English sentences are displayed on the picture screen. In both of these experiments, the audio-visual experiment by the pre-post test method

was applied, but no statistically significant difference in the educational effect of the program by the difference in the condition for the production of the program was recognized.

Just like the cases of the above-mentioned two experiments, the type of experiment intended to compare the educational effects of the several programs with similar aims but differentiated in the composition or the method of presentation has not been conducted for some time after the above-mentioned two experiments, perhaps, due to the reason such that this type of experimental program requires the researcher to have professional skill of production, or is expensive to produce. In the meantime, however, as for the type of experiment intended to analyze the educational effects of the programs produced by the broadcasting stations with the program analyzer, based on the data obtained by having the programs viewed by the children, several cases conducted by Ogura and others have been reported.

In 1969, 1970 and 1976, Y. Ogura has conducted the experiments for the two programs, "Travel on Television" and "Cheerful Companions", using the program analyzer and the questionaires. His experiments were intended to inquire into the relationship between the emotive reactions of the children to the artistic effect of

the picture and the children's apprehension of the content of the program.

Concerning the educational effect of the video, Ogura remarked, "The video is able to cause the sensuous recognition of the object in the mind of each children, and this process of recognition will be able to be explained theoretically. A child is able not only substitute itself imaginarily for the leading character in the television story but also to let its ego participate in it, and the television can internally motivate the children to learn. Such ability of the video derives from its artistic effect. Thus, when we believe in that the emotive impression which each children receives from the picture screen of the television facilitates the intellectual perception of the things, we may say that the television is not a mere supplementary teaching material but one of the principal teaching materials." From this standpoint, Ogura's experiments were designed so that each child viewing the television could depress the button of the analyzer each time when the picture that the child liked was seen, and such reactions of the children were recorded by the analyzer, then the recorded data was analyzed together with the data obtained through the questionnairs filled before and

after the program had been viewed by the children in order to measure the educational effect of the program. Also, in 1972, the similar experiment was conducted by M. Murai and his co-researchers using a television program for the social studies, "Histories of Our Lives". For this experiment, almost similar techniques to those employed by Ogura were also employed by Murai.

The common conclusions reached through the above-mentioned experiments conducted by Ogura and Murai respectively using the three different television programs are (1) that the "like" reaction of the child becomes poor when the picture shown is narration-oriented, less active and lacking in variety, (2) that the children with high IQs tend to apprehend the meaning of the video in relation with the narration, while the children with low IQs tend to show greater interest in the video itself than the narration, and (3) that any television program as a teaching material will not be able cause the emotive reactions of the children merely by the video-composing techniques such as the attractive camera angle and the uniqueness of the cut, but it must be composed so that it will be able to meet the requirements of the educational aim of the program.

The experimental researches aiming at the scientific analysis of the children's reactions to the television programs, and the analysis of the educational effect of the program in relation with the composition of the program have not been conducted for some time in Japan after those conducted by Ogura, Murai and some others. This inactive interval of the above-mentioned type of research activities may derive mainly from the reason that the result of this type of research is applicable only to the evaluation of the program used for the research, and it is not necessarily possible to generalize the result of such research.

At this point, however, we can say that, if we take the position that it is good enough for the research of the school broadcasting to concentrate on how to effectively utilize the given or available school television programs based on the given compositions, such posture towards the school television will contribute neither to the further progress of school broadcasting nor to the further advance in the abilities of the program producers at the broadcasting stations. The period of about a decade during which the research activities concerned with the contents or compositions of the television programs had been inactive was a period of infertility for the research-

ers of the school broadcasting programs in Japan, despite of that the number of the schools utilizing the school broadcasting was on the rapid increase in that period.

After 1975, however, as the examples of the researches featuring the multiple approach to the problems, there were cases concerned with the educational effects of the television programs for the study of English language conducted by S. Imaizumi in 1980 and 1981. Her research consisted of the survey by the questionnaires directed to about 1700 school teachers throughout the country, and the program-viewing experiments using the pupils as the subjects of the experiment.

In Imaizumi's research, the result of survey covering the English teachers and the pupils of junior and senior high schools have revealed that the shares of the teachers and the pupils who regard NHK's English study television program as "difficult" are considerably high. In the subsequent stage of the research, he analyzed one of the English study programs that had been regularly on the air, using the program analyzer. The result of analysis indicated that 30 to 50% of all the pupils had reacted as "I couldn't understand" even when the presented English sentence had relatively simple structures, and this was estimated to result from

that the relatively difficult words had been used. In the next stage of the research, she prepared several kinds of experimental English VTR segments, and the relationship between the degree of difficulty of English word used in the segment and the apprehension of the pupil was studied. Also, the result of Imaizumi's research has revealed that the Japanese pupils' abilities to hear and understand English language are generally lower than estimated by the teachers, and that as for the pupils' abilities to apprehend the points of any given English sentence, the pupils, especially those whose achievements in English language are at lower levels, are not able to properly apprehend the outlines of the individual sentences and the whole story when the words which they have never learnt are used in the sentences, even when such unknown words are not so essential for the apprehension of the outline of the sentence or the story.

As one of the formative researches of the educational programs, there is the research of the educational television program for the two-year-old infants. The results of some surveys indicate that two- to three-year-old infants are exposed most long to the television in Japan. Thus, it is quite obvious that the children at these ages are influenced greatly from the televisions. By that time, however, there have

been no such television programs produced matching with the developmental stages of the infants of two to three years old. Consequently, the children at these ages had no choice but viewing the programs produced for the children of four to five year old. Such situation has given rise to the opinion that the programs that help the mental development of two- to three-year-old children, since it may not be beneficial for the children to view the programs not matching with their stages of mental development. On this understanding, T. Shirai, T. Sakamoto, T. Akiyama and the directors of the TV programs for the infants started the joint research for the development of new programs from 1979.

In their research, they have attempted to analyze the relationship between the two-year-old infant and the television based on the data obtained through the factual survey on the television-viewing habit of two-year-old infants in both urbanized districts and the agricultural districts, and also through the psychological observation of the case where an infant is left alone with a television in a playroom, and the case where a group of infants are left together with a television in the same playroom.

Akiyama has analyzed the contents of several tens of television programs intended for the infants in his attempt to clarify the types of television segments that not only being attractive to the two-year-old infants but being able to induce the positive reactions of the infants. Then, he has produced seven different short experimental television programs as the materials for testing what are the essential factors for the television to attract the attentions of the two-year-old infants, and the result of his experiment has revealed that the infants at this age are most strongly interested in the programs featuring the counting numbers such as 1, 2, 3 and so on.

Subsequent to the above experiments, he conducts another experiment using the experimental television programs showing the scenes of the infants drawing the pictures and playing with wooden toys, short stories and the games for telling the difference in shape and the size of various objects such as the circular and triangular objects, which he has produced for the purpose of experiment, and have been shown to scores of two-year-old infants. The result of his experiment has shown that the two-year-old infants are interested in the cognitive video. This experiment is still continuing.

Research on the segmental and repetitive use of television program

It is unquestionable that any television program is produced expecting that it will be viewed from the beginning to the end.

Thus, it is quite natural for any producer of television program to desire that a program will be seen completely without any omissions. However, the schoolteachers using the television programs have their own programs for the education of the children. In other words, each schoolteacher tends to put the television program within one less time that normally lasts 40 to 50 minutes per subject. Thus, some of the existing television programs are too long to be viewed fully within a lesson time. In order to overcome such problems, some schoolteacher save time for his own lesson by showing their pupils only a part of the program such as the part for the experiment in the case of the program for the study of the science, or in the case of English program, the schoolteacher shows the first half by the VTR, and the second half after he has given his own comment to the pupils.

Besides, some schoolteachers use the television programs repetitively. The research on the educational effects of the television programs has become active

especially after 1965 when the compact-type VTRs have begun to spread among the users such as the research institutes and the shools, since the spread of such VTRs have made easier the analyses and the repetitive use of the television programs.

S. Mori seems to be one who has first given rise to the controversy, through his paper published in 1968, on the advantage of the segmental use of the television programs, challenging conventional theory of the education by the television. In his paper, Mori positively suggested the advantages of the segmental and repetitive use of the television programs through the utilization of the VTRs, based on his view that the educational effect on the children is dependent on the way the schoolteacher instruct the children.

Mori also conducted a joint research with T. Kataoka in 1968 on the educational effects of the school television programs, "Cheerful Companions", "Science Classroom for the First Graders of Junior High School" and "The Society We Live In". For the purpose of the research, these programs were shown two different groups of pupils, of which one group is exposed to the segmental showing the programs by the VTRs, while the other is exposed to complete showing of the programs. The result of this experiment has indicated that the

group exposed to the segmental showing of the program has shown the higher educational effect than the other, and the results of the questionnaire answered by the pupils of the former group have also shown the favorable reactions such as "Understand well" or "Enjoyed much" to the segmental viewing of the programs. In 1971, Kataoka and others conducted similar research on other television programs, "Histories of Our Lives" and "Travel on Television", and they have reconfirmed the advantage of the segmental use of the television programs. After the researches by Mori and Kataoka, many similar researches have been conducted by other researchers, and these researchers have also proved that the educational effect by the segmental use of the television program is higher than that by viewing the whole program at a time.

In 1979, Araki conducted his research on the educational effect of the repetitive use of the television programs, using a program for the kindergarten children, "Can You Do It?" In his research that lasted for two months, the program was shown to two different groups of children, of which one group viewed the program once a week, and the other group viewed the same program three times a week. The result of his research has shown that the group of the children exposed to the same program three times a week have shown remarkable

development in the abilities concerned with the creative imagination and the general apprehension without showing any sign of weariness from being shown the same program repetitively.

The segmental or repetitive use of the television program through the utilization of the VTR has often been criticized from the standpoint of the conventional theory supporting the educational broadcasting, and, as far as the author knows, such criticism seems to be peculiar to the broadcasting education in Japan.

As mentioned previously, the utilization of the television for the education in Japan started based on the system for the utilization of the radio programs for the education. Under such circumstances, in the early stage of the utilization of the school television, the pioneers in this field considered firstly that it is important for them to utilize fully the advantage of the television, as a radio wave medium, that it is able to reproduce visually and instantaneously what is happening in the society or the world for the viewers in classroom so that the conventional way of doing things in the classroom will be changed dynamically.

Secondly, they have taken the position that the type of teachers who believe it essential for them to have the

complete mastery of the knowledges to be transferred to their pupils belong to the old-fashioned type, and thus the teachers of the new age shall take the position that they learn and absorb new knowledges together with their pupils. For this reason, they suggested the teachers not to view the contents of the television programs before the children do so that the teachers will be able to share their emotion with the children.

They also maintains that the segmental use of video-taped television program after teacher's complete mastery of its content is nothing more than the conventional way of using the old-fashioned audio-visual teaching materials, and thus such use of the television program cannot be considered to be orthodox way of using.

Thus, even today, not a few teachers are against the later use of the television program by VTR, and the segmental and repetitive use of the television program by VTR.

Despite of the existence of the above-mentioned force among the schoolteachers, however, the result of the survey conducted by T. Akiyama in 1982 indicates that 33% of the elementary school teachers and 68% of the junior high school teachers are practicing the segmental

use of the television programs.

As can be realized from the foregoing discussions, many of the past researches supported with the objective experimental data are concerned with the evaluation or the proof of the effectiveness of the segmental use of the television programs, and only a few of them are concerned with the effect of the one-time through use of the television programs. On the other hand, as for the research papers written by the teachers of junior and senior high schools based on their subjective observations during their daily practices of the education, many of them are concerned with the educational effects of the cases where the pupils have been exposed directly and completely to the television programs through the televisions.

The broadcasters are strongly interested in knowing which of the segmental, repetitive and direct uses of the television programs will bring the highest educational effect. This is important for the broadcasters, because, if the schoolteachers will attach much importance to the up-to-date characteristic of the school television programs, and thus to the direct viewing of the programs through the televisions, it will be necessary for the broadcasters to produce and broadcast the school television

programs in the future too, but if the schoolteachers will increasingly turn to the segmental or repetitive use of the program by the use of the VTR, or the selective use of the programs stocked as the video tapes, there will be no reason for the school television programs to be broadcasted. In other words, when the utilization of the school television programs in the forms described in the latter case has become a common place, the school television programs can be replaced by the packages of the video tapes and the related texts that can be marketed by educational material companies and publishing companies. And, when such situation prevails actually, it means the history of the school television comes to an end.

The author presumes that both the Japanese broadcasters and the schoolteachers will be compelled to make a choice from the above-mentioned two alternatives by the middle of 1980s.

If the school television takes the second choice, the areas left for the educational television broadcasting will be those of the adult education or the lifelong integrated education.

5. Research of school broadcasting based on the practices of schoolteachers

One of the most conspicuous characteristics of the researches on the school broadcasting in Japan is that more than several hundred of research papers on the school television have been written by schoolteachers and published annually. It is estimated that probably about several thousand research papers have been published by now since they were first published at the First Educational Television Committee held in 1951, too many papers to refer respectively.

These research papers include ones that are highly objective in the method employed for the research, since the research papers of this type have been prepared based on the objective data obtained by analyzing the various conditions such as the learning abilities of the individual children, teaching method employed by the teacher and so on which are considered to constitute the factors governing the educational effect of the given television program, and the conclusions have been drawn based on the results of the tests applied to the children before and after the children's having been exposed to that particular television programs used for the research. But, most of the research papers fall under the

category of the subjective research paper, because these papers have been written based on their subjective observations of what happened to both the teachers and the children in the course of the actual practices of the education using the television programs by the teachers, including their observations of the improvement in the teachers' own teaching skills and the improvement or change in the learning attitude of the children which are considered to have occurred under the influence of the school television.

A great number of research papers based on the experiences of the individual shcoolteachers are read and the various symposia on the educational broadcasting held annually at the prefectural or the city level such as the national general meeting of Zenporen and the special advanced seminars of the educational broadcasting at local level.

Here, the author introduces the three research paper written by the schoolteachers from those published during 1982. One written by K. Mitoki, an elementary school teacher in Hofu City is concerned with her experience in the use of a series school television program, "Our Social Studies Note" that mainly covers the activity of the City of Numazu and neighboring communities in the central area of Japan which she

considerd to have changed the children's views of the local community where they live.

The second is one written by T. Ohtani, an elementary school teacher in Nara Prefecture, who has shown the school television programs, "Travel on Television" and "Histories of Our Lives" to the children of his class after making the necessary preparations so that the contents of the programs can be understood well by the children. As the educational effect, he has pointed out that these programs have contributed to the improvement in the learning attitude of the children and the ability to express themselves in writing.

The third is one written by T. Uemura, an elementary school teacher in Kyoto City, who has used the television program, "Science Classroom on Television" to the low graders of the elementary school, and according to his observation, this program has inspired the spontaneity in asking questions and finding the problems into the children.

Most of the research papers numbering more than one thousand in the past 19 years come within the categories of the abovementioned three types, and thus it is rather difficult to draw general conclusions from the observations of the individual schoolteachers, since their

observations have been made in the course of their daily taching practices carried out under different conditions.

After all, however, the author believes that the educational broadcasting in Japan as a whole has been able to grow steadily until today, supported not only by the active practices of the school television utilization by the individual shcool teachers, who have also played the vital roles for the development of the research on the school broadcasting, but also by the system through which the opinions of the producers of the programs and those of the schoolteachers have been able to be exchanged freely.

6. Recent trend of research on school broadcasting

As for the recent trend of the research on the school broadcasting, it must be noted that the cases of the researches concerned with the school television itself have decreased largely in number, and instead, the number of the cases concerned with the audio-visual communications, teaching by the video media, the control and application of the audio-visual information is on the increase.

For instance, about 110 pieces of research papers have been presented at the annual meeting of Nippon Hoso Kyoiku Gakkai and Nippon Shi-chokaku Kyoiku Gakkai in the past five years. Of these research papers, no more than ten-odd pieces are totally concerned with the school broadcasting programs. Instead, the researches on the man's audio-visual viewing ability to the video, audio-visual education media system, CAI (Computer Assisted Instruction) and video disks as the new audio-visual educational media.

In 1980 and 1981, Mizukoshi and Yoshida conducted the experimental researches on the man's audio-visual ability, and they have accumulated the results of their researches concerning the effects of the difference in the age of elementary school children, IQ and type of recognition, and learning attitude on the audio-visual ability of the child to the video media, then such accumulated data are applied for the preparation of the curricula for the development of the children's audio-visual abilities to the video media.

## Conclusion

There was the interval of 27 years between the time when the first radio broadcasting in Japan was started in 1925 and the time when the television broadcasting was commenced in 1953. As in 1980, after another 27

years from 1953, almost all the senior high schools throughout Japan are provided with the facilities for utilizing the school television including the VTRs, and actually, in most instances, the school televisions are used in the form of the VTR. As in 1983, the same statistics of the junior high schools is approaching that of the senior high schools.

As mentioned previously, the school television is first regarded as the mere extension of the school radio broadcasting, and the relation of the VTR to the television was also treated similarly in Japan. Thus, in the beginning, the VTR in relation with the school education was considered to be nothing more than the device that enable the schoolteacher to show the given television program to the children at some other later time depending on the progress of his own teaching schedule. In the meantime, the difference between the television program and the videotaped programs has become increasingly conspicuous as the use of the videotaped programs for the ordinary, segmental and repetitive use of the television programs, the marketing of the videotaped teaching materials, production of the videotaped teaching materials by the schoolteachers and the formation of the videotaped program library become a common place increasingly, then the videotaped programs

have come to be recognized as the New Media.

Under such circumstances, the research on the education by the broadcasting including the research on the school broadcasting programs has been moving towards the direction of the research on the video teaching material in a broad sense.

Such general trend of the research on the education by the broadcasting is also reflected on the research of the audio-visual education, which was limited to the mere research of the educational effect of each individual medium in the beginning, since it has become to be carried out in consideration of the interaction of the various factors such as the abilities and the personalities of the individual learners, and the subjects learned by each learner, and besides it has come to deal with the subject concerned with the utilization of the multimedia too.

Also, as we have already discussed previously, there are a great number of the research works concerned with the education by the broadcasting or the education by the video media, but cases concerned with the media education, as the part of the research on the television education, are quite limited in Japan.

In each of Tokyo and Osaka, the two major cities in Japan, seven color VHF television channels are sending their programs from early in the morning to the midnight, and many groups of the citizens criticize the broadcasting stations for the rude violence or sex scenes appearing in their programs, or the lack of morality in the commercials form time to time, but their activities are not so influential like the cases such as that of the "Active Young TV Viewers" in the U.S.A. and West European countries.

In Japan, the media education is carried out in only a few schools. Two objectives were intended when the radio school broadcasting was initiated in Japan; education by broadcasting and education regarding broadcasting. Not only supply of teaching materials by radio broadcasting but also the study of the radio broadcasting were considered as important. Thus, the author thinks it quite natural and expect at the same time that pioneering research for media education will be actively conducted from now.

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